REMARKS

Claims 1, 15, 18 and 21 have been amended. No claims have been cancelled or added. Hence, claims 1 – 23 are pending in the Application.

SUMMARY OF REJECTIONS/OBJECTIONS

Claims 1 – 3, 15 – 23 are rejected under 35 U.S. 103(a) as being unpatentable over U.S. Patent No. 5,732,138, herein Noll in view of U.S. Patent 6,704,871, herein Kaplan.

Claims 4 – 5 are rejected under 35 USC 103(a) as being unpatentable over Noll and Kaplan in view of U.S. Patent No. 6,307,938, herein Maytas.

Claims 6 – 7 are rejected under 35 USC 103(a) as being unpatentable over Noll and Kaplan in view of U.S. Patent No. 5,892,900, herein Ginter.

Claims 10 – 14 are rejected under 35 USC 103(a) as being unpatentable over Noll, Kaplan, Maytas and Ginter, in view of U.S. Patent No. 5,115,504.

Claim 1 and 21

Claims 1 and 21, as amended, recite "generating a first output value based on applying [a] first digital input ['from a set of possible digital inputs'] to [a] first integrated circuit", "wherein each digital input in said set of possible digital inputs causes [the] first integrated circuit to generate a corresponding unique output value [that is] unique relative to another output value generated for said each digital input by each integrated circuit of a plurality of integrated circuits." Thus, a feature of claims 1 and 12 is that an integrated circuit generates an output value for each digital input of a set of digital inputs, and for the output value generated for a particular digital input from the set, the output value is unique relative to the output value generated by another integrated circuit from the

plurality of integrated circuits for the digital input. In other words, for a given digital input, the integrated circuit produces an output value that is unique relative to the output value that would be generated by the other integrated circuits in the plurality. Furthermore, a value unique in this way is generated for each digital input in the set of digital inputs. This feature shall be hence forth referred to herein as the unique-output feature.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP 2143

The cited art, alone or in combination, fails to teach or suggest in any way an integrated circuit with the unique-output feature, as claimed. Therefore, the cited art fails to teach or suggest all the claim limitations of claims 1 and 21 and these claims are not prima facie obvious.

The Office Action has correlated causing "a first integrated circuit" to "generate a corresponding unique output value" for "each digital input in said set of possible digital inputs" to teachings in Noll about either a cryptographic hash function or a pseudo-random number generator. However, none of these teachings suggests in any way much less disclose an integrated circuit having the unique-output feature.

Specifically, the teaching about the cryptographic hash function fails to disclose or suggest in any way the unique-output feature. At col. 5, line 41 – 45, Noll teaches several properties of a hash function. For a particular input x, Noll teaches that given

"hash(x), it is hard to find X, or that given "hash(x), it is hard to find hash(x+1)". However, Noll fails to teach or suggest in any way that hash(x) may can be unequal to hash(X), that is, Noll fails to teach that the cryptographic hash function can produce a different value for the same input value in any circumstance, even when the hash function is implemented on different integrated circuits.

Neither does the teaching about the pseudo-number generator disclose or suggest in any way the unique-output feature. A pseudo-number generator may generate, at different times, for the same given digital input, different output numbers. On the other hand, a pseudo-number generator may generate, at different times, for the same given digital input, the same output number. Whether output numbers generated at different times are the same or different is a random matter. In other words, it does not follow that because output is random that it is unique, that is, that the output is very unlikely to match another output given the same input.

Based on the foregoing, claims 1 and 21 are patentable. Reconsideration and allowance of claims 1 and 21 is respectfully requested.

Claim 2

Claim 2 requires "generating a first output value ... based on anomalies of said first integrated circuit." Nothing in the cited art, alone or in combination, discloses or suggests in any way this feature.

The Office Action cites a hash function taught by Noll as teaching "generating values based on anomalies of said first integrated circuit." Specifically, the Office Action states that the hash function contains the anomalies. However, nothing in Noll discloses anomalies contained in a hash function, much less a way of generating values that relies on such anomalies. In fact, rather than relying on anomalies of a hash function, Noll

teaches that generation of a hash value depends on conformity to certain properties, rather than depends on anomalies, e.g. deviations from the properties. Specifically, Noll teaches:

> Cryptographic hash functions have the following properties:
>
> 1) Given hash(x), it is hard to find x.
>
> 2) Given hash(x), it is hard to find hash(x+1).
>
> 3) Given x and hash(x), it is hard to find some value y different from x, such that hash(x)=hash(y)....
>
> Together, these three properties solve the problems with chaotic systems described earlier ....

Thus, a principle expressly taught by Noll is that, to solve the problems addressed by Noll, hash functions must conform to properties, not deviate from them or rely on anomalies.

Based on the foregoing, the cited art fails to disclose or suggest all the limitations of claim 2. Reconsideration and allowance of claim 2 is respectfully requested.

Claim 15

Claim 15, as amended, recites "to generate a corresponding unique output value, said unique output value being unique relative to another output value generated for said each digital input by each integrated circuit of a plurality of integrated circuits." Thus claim 15 recites the unique-output feature discussed with respect to claim 1. Therefore, claim 15 is patentable for reasons similar to those discussed with respect to claim 1. Reconsideration and allowance of claim 15 is respectfully requested.

Claim 16

Claim 16, recites, "said output value detection mechanism detects said first output values based on anomalies of said integrated circuit." Apparently, the Office Action has equated the anomalies of the integrated circuit to the hash function taught by Noll. For reasons similar to those discussed with respect to claim 2, Noll's teaching regarding the hash function fails to explicitly or inherently disclose anomalies of an integrated circuit,

much less an output value detection mechanism that detects output values based on anomalies of an integrated circuit.

Claim 18

Claim 18, as amended, recites "to generate a corresponding unique output value, said unique output value being unique relative to another output value generated for said each digital input by each integrated circuit of a plurality of integrated circuits." Thus, claim 18 recites the unique-output feature discussed with respect to claim 1. Therefore, claim 18 is patentable for reasons similar to those discussed with respect to claim 1. Reconsideration and allowance of claim 18 is respectfully requested.

Claim 19

Claim 19, recites, that an "output value detection mechanism detects said first output value based on anomalies of said integrated circuit." Apparently, the Office Action has equated the anomalies of the integrated circuit to the hash function taught by Noll. For reasons similar to those discussed with respect to claim 2, Noll's teaching regarding the hash function fails to explicitly or inherently disclose anomalies of an integrated circuit, much less an output value detection mechanism that detects output values based on anomalies of an integrated circuit.

Remaining Dependant Claims

The pending claims not discussed so far are dependant claims that depend on an independent claim that is discussed above. Because each of the dependant claims include the limitations of claims upon which they depend, the dependant claims are patentable for at least those reasons the claims upon which the dependant claims depend are patentable. Removal of the rejections with respect to the dependant claims and allowance of the dependant claims is respectfully requested. In addition, the dependent claims introduce additional limitations that independently render them patentable. Due to the fundamental

difference already identified, a separate discussion of those limitations is not included at this time.

For the reasons set forth above, Applicant respectfully submits that all pending claims are patentable over the art of record, including the art cited but not applied. Accordingly, allowance of all claims is hereby respectfully solicited.

The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

Respectfully submitted,

HICKMAN PALERMO TRUONG & BECKER LLP

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Marcel K. Bingham
Reg. No. 42,327

2055 Gateway Place, Suite 550
San Jose, CA 95110
Telephone No.: (408) 414-1080 ext.206
Facsimile No.: (408) 414-1076

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

on June 3, 2005 by Jennifer Newell